To: Sheri Looper, USBR
From: CALFED - Water Use Efficiency
Date: February 24, 2006
Subject: 2006 USBR CALFED Bay-Delta Program WUE Grant

The *USBR* is providing grant funding for projects that pursue the goals of the CALFED Bay-Delta Program. This memo provides information that links users of irrigation water to the CALFED Bay Delta goals. Information is provided on the CALFED Water Use Efficiency elements listing of Targeted Benefits and Quantifiable Objectives that potentially apply to irrigated agriculture. This packet includes:

- Cover memo explaining the packet
- Summary of Targeted Benefits and Quantifiable Objectives
- Explanation of tables used to describe Targeted Benefits
- Listing of Targeted Benefits by water supplier

The summary of Targeted Benefits and Quantifiable Objectives is intended to provide sufficient information about the origins of Targeted Benefits, how Targeted Benefits are quantified, how Targeted Benefits become Quantifiable Objectives and most importantly how to use this information to apply for grant funding. In addition, there is an explanation on how to read and interpret the tables listed in Appendix A.

What this summary does not do is explain the **details** of how Targeted Benefits are quantified and turned into Quantifiable Objectives. However, this type of information is available in *Details of Quantifiable Objective, December 2000* that can be found at:

http://calwater.ca.gov/Archives/WaterUseEfficiency/WaterUseEfficiencyQuantifiableObjectives.shtml

The listing of Targeted Benefits that potentially apply to water suppliers within the Central Valley are provided in Appendix A.

CALFED

Water Use Efficiency

Summary of Targeted Benefits and Quantifiable Objectives

The CALFED Bay-Delta Program is a cooperative effort among state and federal agencies and the public to ensure a healthy ecosystem, reliable water supplies, good quality water and stable levees in California's Bay-Delta System. The Water Use Efficiency element of CALFED has four components: agricultural, urban, managed wetlands and recycling. There are two drivers of the ag and managed wetlands components 1) encourage more water users and water suppliers to implement local, cost-effective efficient water management practices; and 2) provide funding to foster the implementation of practices that are cost effective from a statewide perspective. In addition, the Water Use Efficiency element is continually being revised and updated as implementation and new information is developed.

Purpose of Water Use Efficiency Element

The Water Use Efficiency element is committed to using incentives to motivate water suppliers and water users to institute practices that can more effectively and efficiently address regional or statewide objectives. The terms Targeted Benefit and Quantifiable Objectives are part of a conceptual model to make a relevant and credible WUE program that can be implemented and verified. CALFED has developed numerical targets for specified locations that represent CALFED's initial estimates of the practical, cost-effective contribution irrigated agriculture can potentially make to attain these identified benefits. These estimates are referred to as Quantifiable Objectives. Implementation of water use efficiency practices, based on actions proposed by locals, are targeted at achieving region-specific, CALFED benefits related to water quality, quantity and in-stream flow and timing.

Explanation of Targeted Benefits and Quantifiable Objectives

Targeted Benefits

Targeted Benefits, represent a specific listing of CALFED related goals that are associated with agricultural and by extension refuge water management practices. The Targeted Benefits originate mainly from CALFED's Ecosystem Restoration and Water Quality elements, and local knowledge of flows to salt sinks. The Water Use Efficiency element has identified 196 Targeted Benefits that relate to water quality, quantity and in-stream flow and timing. The targeted benefits are quantified by month and year type (wet, dry, etc). These Targeted Benefits are specific for the sub-regions that represent the Central Valley.

Targeted Benefits are quantified by comparing the identified need to the existing condition. For example, the CALFED Ecosystem Restoration element has specified the in-stream flow and timing needs for the Stanislaus River. The incremental need is determined by comparing the existing Stanislaus River flow to the Targeted Benefit. The difference between the existing flow and the targeted flow is the Quantified Targeted Benefit.

Quantifiable Objectives

Quantifiable Objectives represent a first order approximation of the practical and cost-effective contribution irrigated agriculture or refuges can potentially make toward achieving the Quantified Targeted Benefit. The approximation is based on sub-regional water balances and economic evaluations of water management actions.

A Quantifiable Objective is determined by comparing a quantified target to the potential for irrigated agriculture to meet the target (Targeted Benefit). In some cases, local water management actions can potentially achieve all of the quantified Targeted Benefit. In others, the need is greater than can be met by water use efficiency.

The CALFED Water Use Efficiency element has prepared a list of 196 Targeted Benefits, and 55 of the Targeted Benefits have been articulated as Quantifiable Objectives. A complete listing of the Targeted Benefits and Quantifiable Objectives are found at

http://calwater.ca.gov/Archives/WaterUseEfficiency/WaterUseEfficiencyQuantifiableObjectives.shtml

Explanation of Tables Used to Describe Targeted Benefits

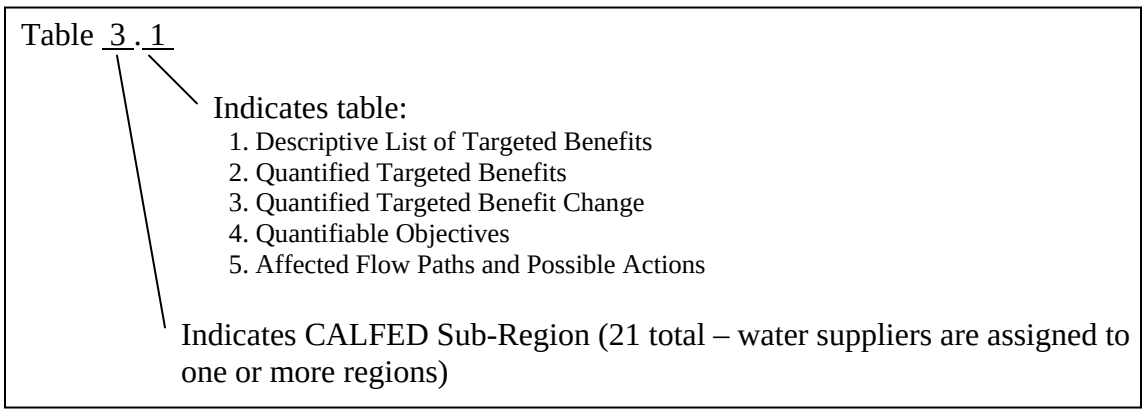
The following information is provided to link the CALFED Targeted Benefits to irrigation water suppliers. The listing of applicable Targeted Benefits for each water supplier is provided at:

http://www.agwatercouncil.org/WMP/tblinkages.htm

Detail for each Targeted Benefit is found by locating the CALFED Region and then accessing the proper CALFED Sub-region (CVGSM Region) at:

http://calwater.ca.gov/Archives/WaterUseEfficiency/WaterUseEfficiencyQuantifiableObjectives.shtml

Within each sub-region the following table structure is used:



In addition to the tables of Targeted Benefits, maps of each sub-region are included.

Description of Targeted Benefit Tables
The following description is broken down into five sections – where each section represents one of the five table types in each region. Each table number is referred to in parenthesis ( ) with the column's description given below.

NOTE: Some Targeted Benefit are found in more than one sub-region. In this case the Targeted Benefit's duplicate number is given in brackets [ ]. A Targeted Benefit may be found in multiple sub-regions if the need can be met by water management actions in more than one sub-region.

Table 1: Descriptive List of Targeted Benefits
The first column is the Targeted Benefit #(1). The Location (2) refers to the general area that the Targeted Benefit is focused. The Category of Targeted Benefit (3) provides a brief description of the Targeted Benefit (flow, quality or quantity). The Beneficiary (4) is the intended recipient of the Targeted Benefits (Eco- ecosystem, Ag-agriculture, M&I-

municipal and industrial). The General Time Frame (5) is type of year or time of year that the change is needed in order to achieve the Targeted Benefit. The Conceptual Completeness (6) is the current understanding of the cause-effect relationship between the Targeted Benefit in quantifiable water flow and timing, quality and quantity and the intended effect on the beneficiary.

Table 2: Quantified Targeted Benefits
This table includes the Targeted Benefit # (1), the Source and Description of Quantified Targeted Benefit (7). This column provides the citation and text from which the Targeted Benefit is based.

Table3: Quantified Targeted Benefit Change
This table provides information on how the Targeted Benefit is quantified. This includes:

- Reference Condition – the quantitative representation of the current state of the water resource that must be affected to achieve the Targeted Benefit,
- Quantified Targeted Benefit – the numerically quantified expression of the given Targeted Benefit defined above and,
- Quantified Targeted Benefit Change- the flow and timing, quality or quantity change needed to achieve a given Targeted Benefit.

These elements have two components, Data Source (8) and Data Availability (9). Data Source (8) provides the citation for the data used in the Reference Condition, Quantified Targeted Benefit and the Targeted Benefit Change. Data Availability (9) represents a summary of the availability of quantitative information for Reference Condition, Quantified Targeted Benefit, and Quantified Targeted Benefit Change. Quantified Targeted Benefit Change includes Range of Values (10) that provides a summary of the range of Quantified Targeted Benefit Change values.

Table 4: Quantifiable Objectives
This table addresses the Achievable Agriculture Potential (12) this is the volume of water that irrigated agriculture can potentially contribute on a yearly basis after making infrastructure of irrigation management changes. The Quantifiable Objective (13) is the lesser of the quantified Targeted Benefit or the Achievable Agricultural Potential. The Achievable Agricultural Potential is the practical and cost-effective contribution that can be made to the given Targeted Benefit through water use efficiency changes.

Table 5: Affected Flow Paths and Possible Actions
This table includes the Affected Flow Paths (14) and Possible Actions (15). The affected flow path is the course that water follows between entering and leaving a, given, water balance area. The possible actions are a sample of practices that growers or water suppliers could employ to generate the desired changes. These possible actions are only a sample and do not represent an exhaustive list of practices or prescriptive requirements.